WASHINGTON STATE DEPARTMENT OF ECOLOGY

Initial Investigation
Long Painting Company Neighborhood

Prepared by:
Washington State Department of Ecology
Toxics Cleanup Program
Northwest Regional Office

December 2000

Acknowledgments

A special thanks goes to Peter Isaksen with the Site Hazard Assessment Program at Public Health – Seattle & King County for his work preparing the project plans, coordinating and conducting the sampling, and preparing the graphics for this report. Contributions by Yolanda King and Carsten Thomsen, also with Public Health – Seattle & King County, are appreciated as well.

Introduction

This report, prepared by the Washington State Department of Ecology (Ecology), summarizes the findings from the surface soil sampling that was conducted on residential and park properties near the Long Painting Company, located at 8025 10th Avenue South in Seattle, Washington. The surface soil sampling was conducted by Public Health – Seattle & King County, on behalf of Ecology, as part of an initial investigation pursuant to the Model Toxics Control Act (MTCA) Cleanup Regulation (Chapter 173-340 WAC).

Background

The Long Painting Company operates a commercial painting facility in a mixed residential, commercial, and industrial area within the South Park area of Seattle. More than 90 percent of Long Painting Company's work is reportedly done outside the South Park area. However, sandblasting, painting, zinc metallizing, waste storage, and vehicle maintenance activities occur at the firm's South Park facility. Paints, solvents, sandblast grit, and petroleum are potential sources of contamination.

Community members near Long Painting Company have filed complaints with the Puget Sound Clean Air Agency (PSCAA) and Ecology regarding potential releases of contaminants from the facility into the nearby community. Residents have expressed concerns about the potential health effects associated with these releases. Complaints include reports of odors and deposition of particulate matter.

In response to the community's concerns about the releases of particulate matter from the Long Painting Company, Ecology initiated an investigation to evaluate whether the surface soils at residential and park properties contained contaminants that pose a threat to human health and the environment. Ecology limited its surface soil investigation to metals because these types of contaminants are most likely to be found in particulate matter released from the Long Painting Company. The approximate site boundaries are shown on Figure 1.

Twenty-seven residential and two park properties were proposed for surface soil sampling (Figure 2). The properties were selected to obtain representative samples in the vicinity of the Long Painting Company and included properties where reports of releases had occurred. Prior to sampling, property owners were contacted by Public Health – Seattle & King County to obtain permission to collect soil samples from their properties.

Discussion

Property owners from 16 of the 27 residential properties and the City of Seattle, the owner of the two parks, provided Public Health – Seattle & King County with access to their properties. The remaining 11 property owners either did not respond or decided not to provide access to their properties.

The surface soil samples were collected on October 17, 2000. One sample was collected from each of the 16 residential properties that allowed Public Health – Seattle & King County access to their property. Four samples and one duplicate sample were collected at each park. The sample locations are shown on Figure 3. Samples were not collected from any of the properties where access agreements were not obtained.

Surface soil samples were collected in relatively undisturbed portions of each of the properties, away from driveways and sides of structures. This was done to reduce the chance of sampling in areas that may have been affected by activities unrelated to the alleged source, the Long Painting Company.

Surface soil samples were collected with pre-cleaned stainless steel spoons from zero to two-inches below the ground surface. Grass and other vegetation were removed prior to collecting the samples. Samples were placed in glass jars and stored in coolers with ice prior to delivery to On-Site Environmental, an Ecology accredited analytical laboratory. All of the samples were analyzed for total metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc) and hexavalent chromium. Total metals were analyzed using EPA Method 6010B/7471A. Hexavalent chromium was analyzed using EPA Method 7195/6010 by Sound Analytical Services, a subcontractor of On-Site Environmental.

Ecology's Environmental Assessment Program evaluated the analytical results to ensure the accuracy of the data reported by the analytical laboratory. Based on their review, the data results can be used with some minor limitations. Copies of the data sheets from the analytical laboratory are provided in Appendix A; copies of the Environmental Assessment Program's evaluation are provided in Appendix B.

Low levels of metals were detected during the surface soil investigation. The metals results were compared to MTCA Method A residential soil cleanup levels and/or Method B residential soil cleanup levels for the ingestion route as a first step in the data evaluation process. Cleanup levels are concentrations of contaminants in environmental media such as soil that are protective of human health and the environment under specified exposure conditions. The metals results were also compared to natural background levels for the Puget Sound region. Natural background levels are concentrations of contaminants, such as metals, that are present in an environment that has not been affected by localized human activities. Table 1 presents the metals analytical results and corresponding cleanup levels and/or background concentration.

Arsenic and lead were the only metals detected above the cleanup levels during the surface soil investigation. Four residential properties contained arsenic above the cleanup level of 20 mg/kg; two residential properties contained lead above the cleanup level of 250 mg/kg. None of the park properties contained arsenic or lead above the cleanup levels. Arsenic and lead concentrations detected in surface soils at each property are

presented in Figures 4 and 5, respectively. Thallium, although not detected in the soil samples, had practical quantitation limits that slightly exceeded the cleanup level for 16 of the 26 surface soil samples collected. Some of the metal results were above natural background. However, these results were below corresponding cleanup levels.

Thallium enters the environment primarily from coal burning and smelting and is used for manufacturing electronic devices. Based on a literature review, it does not appear to be a component of paint. Arsenic and lead has been used in various types of paint. However, arsenic and lead can also be found associated with sources other than paint. Metals manufacturing facilities, vehicle maintenance and repair, and batteries are sources of lead. Wood preservatives, pesticides, and lubricating oils are sources of arsenic.

Based on a review of the data, it appears that the highest concentration of metals occurs in the immediate vicinity of the Long Painting Company. Although this might suggest that the Long Painting Company is the source of the metals, other potential sources of metals exist. As a result, Ecology cannot, at this time, establish a link between the elevated metals detected in surface soils with the Long Painting Company operation.

Ecology has requested that the Washington State Department of Health (DOH) evaluate the metals data to determine whether the people are being exposed to harmful levels of contamination through the ingestion, dermal, and inhalation pathways. It is anticipated that DOH will complete its evaluation in December 2000. Based on preliminary discussions with DOH, however, it does not appear that any immediate or long-term health threat exists from exposure to the concentrations of metals detected in surface soils at the residential and park properties sampled near the Long Painting Company facility.

The findings of DOH's evaluation will be presented in a report called a Health Consultation that will be available in early 2001. DOH will provide copies of the Health Consultation to each of the property owners who participated in the Ecology investigation in October.

Conclusion

Low concentrations of metals were detected in surface soils at residential and park properties near the Long Painting Company neighborhood during Ecology's October 2000 investigation. The source of the elevated metals detected in the surface soil is unknown.

Based on DOH's preliminary review of the data, the metal concentrations detected in soil are not an immediate or long-term health threat. The results of DOH's findings will be presented in a Health Consultation that will be available in early 2001.

TABLE 1
Long Painting Company Neighborhood
Surface Soil Sampling Results - Metals

	Metals (mg/kg)													
Sample Number	**Antimony**	**Arsenic**	**Beryllium**	**Cadmium**	**Chromium**	**Chromium VI**	**Copper**	**Lead**	**Mercury**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Zinc**
LPN-1	<6.3	<13	<0.31	0.63	18	<0.12	64	230	<0.31	13	<13	<0.63	[redacted]	360
LPN-2	<6.3	<13	<0.32	0.8	39	<0.12	36	130	<0.32	11	<13	2	[redacted]	210
LPN-3	<6.0	<12	<0.30	<0.60	8.7	<0.12	20	61	<0.30	11	<12	<0.60	[redacted]	83
LPN-4	<5.5	<11	<0.27	<0.55	12	<0.1	17	30	<0.27	11	<11	<0.55	<5.5	110
LPN-5	<5.5	<11	<0.27	<0.55	13	<0.1	19	30	<0.27	14	<11	<0.55	<5.5	130
LPN-6	<5.4	<11	<0.27	<0.54	14	<0.099	19	44	<0.27	13	<11	<0.54	<5.4	110
LPN-7	<5.4	<11	<0.27	<0.54	12	<0.1	18	53	<0.27	12	<11	<0.54	<5.4	110
LPN-8	<5.4	<11	<0.27	<0.54	9.8	<0.1	94	34	<0.27	18	<11	<0.54	<5.4	220
LPN-9	<7.8	[redacted]	<0.39	<0.78	15	<0.14	51	[redacted]	<0.39	13	<16	<0.78	[redacted]	250
LPN-10	<6.8	<14	<0.34	<0.68	11	<0.13	35	100	<0.34	12	<14	<0.68	[redacted]	170
LPN-11	<6.8	[redacted]	<0.34	<0.68	8.5	<0.13	30	110	<0.34	11	<14	<0.68	[redacted]	110
LPN-12	<6.4	<13	<0.32	0.68	11	<0.11	34	190	<0.32	13	<13	<0.64	[redacted]	140
LPN-13	<6.3	<13	<0.32	<0.63	8.9	<0.12	18	46	<0.32	8.5	<13	<0.63	[redacted]	61
LPN-14	<6.6	[redacted]	<0.33	0.72	13	<0.12	66	130	<0.33	12	<13	<0.66	[redacted]	220
LPN-15	<6.0	<12	<0.30	<0.60	11	<0.12	25	97	<0.30	7.1	<12	<0.60	[redacted]	67
LPN-16	<6.0	<12	<0.30	<0.60	13	<0.11	22	41	<0.30	11	<12	<0.60	[redacted]	63
LPN-17	<5.5	<11	<0.27	<0.55	10	<0.1	12	19	<0.27	11	<11	<0.55	<5.5	30
LPN-18	<5.5	<11	<0.27	<0.55	10	<0.1	13	18	<0.27	11	<11	<0.55	<5.5	31
LPN-19	<6.2	<12	<0.31	<0.62	8.6	<0.12	15	24	<0.31	19	<12	<0.62	[redacted]	79
LPN-20	<6.2	<12	<0.31	<0.62	15	<0.11	14	<6.2	<0.31	22	<12	<0.62	[redacted]	35
LPN-21	<5.1	<10	<0.26	<0.51	5	<0.094	6.3	19	<0.26	3	<10	<0.51	<5.1	31
LPN-22	<6.8	<14	<0.34	1.5	15	<0.12	58	[redacted]	<0.34	15	<14	<0.68	[redacted]	300
LPN-23	<5.6	<11	<0.28	<0.56	11	<0.11	19	50	<0.28	8.3	<11	<0.56	<5.6	88
LPN-24	<5.4	<11	<0.27	<0.54	10	<0.092	21	58	<0.27	11	<11	<0.54	<5.4	100
LPN-25	<5.7	[redacted]	<0.29	0.71	23	<0.11	39	170	<0.29	11	<11	<0.57	[redacted]	510
LPN-26	<6.0	<12	<0.30	<0.60	12	<0.1	19	86	<0.30	8.5	<12	<0.60	[redacted]	300
Method A Cleanup Level	NA[1]	20	NA	2	100	19 (Proposed)	NA	250	1	NA	NA	NA	NA	NA
Method B Cleanup Level (Ingestion)	32	1.67	400	80	NA	240	2,960	NA	24	1,600	400	400	5.6	24,000
Natural Background (Puget Sound - 90th Percentile Values)	NA	7.3	0.61	0.77	48.15	NA	36.36	24.02	0.07	47.78	NA	NA	NA	85.56

[1] Not Available

[redacted] Metal Concentration Exceeds Cleanup Level

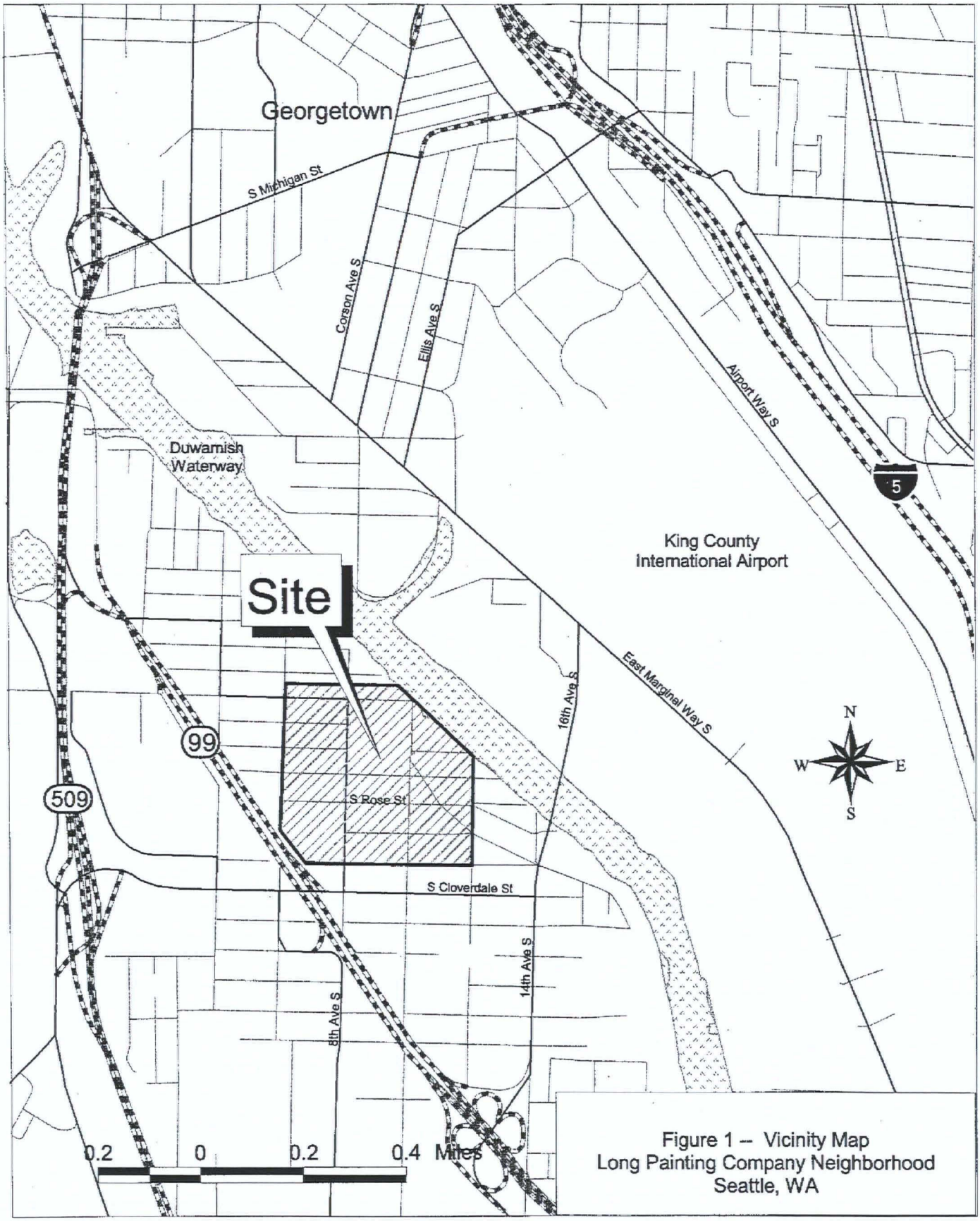


Figure 1 -- Vicinity Map
Long Painting Company Neighborhood
Seattle, WA

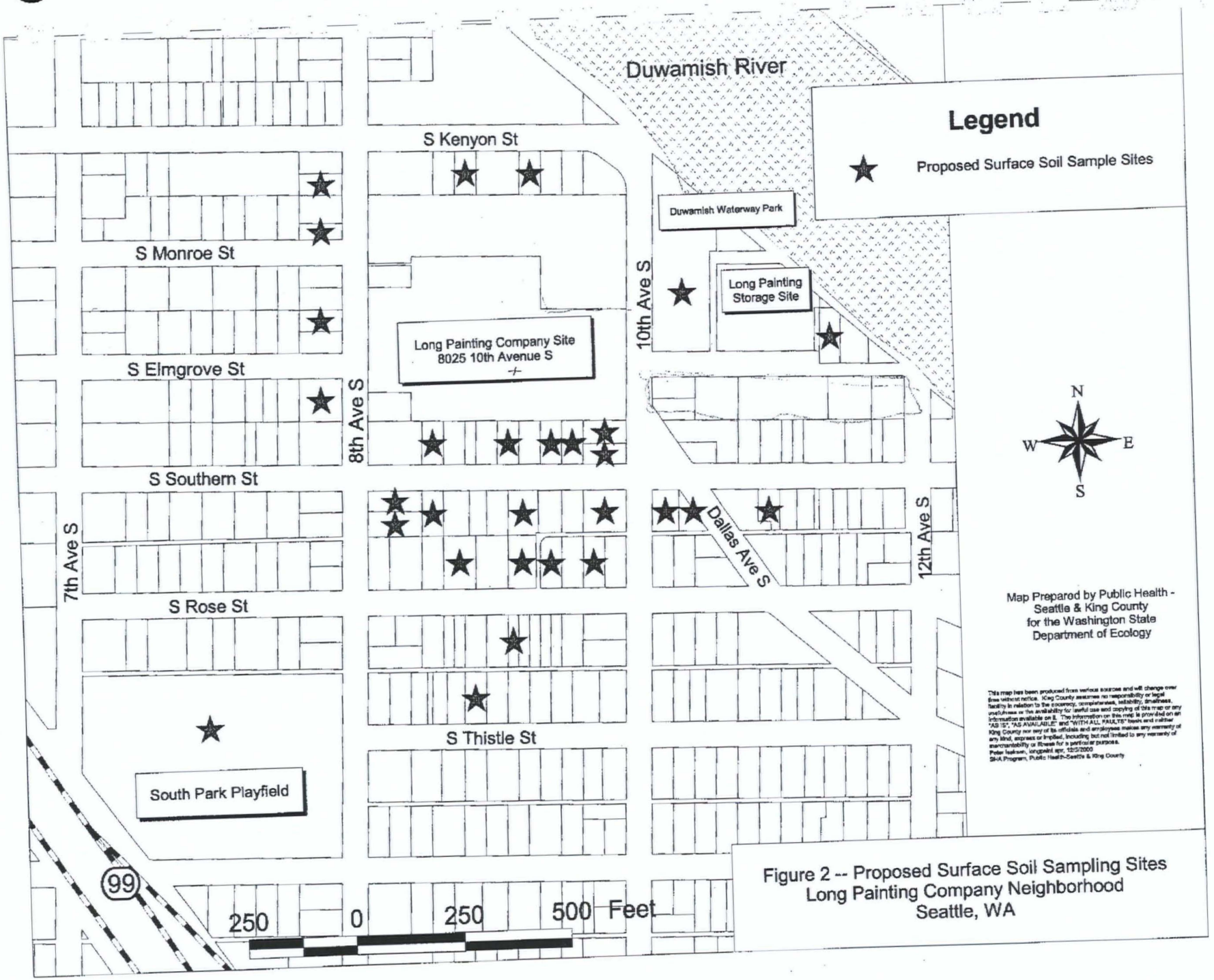


Figure 2 -- Proposed Surface Soil Sampling Sites
Long Painting Company Neighborhood
Seattle, WA

LP_00564

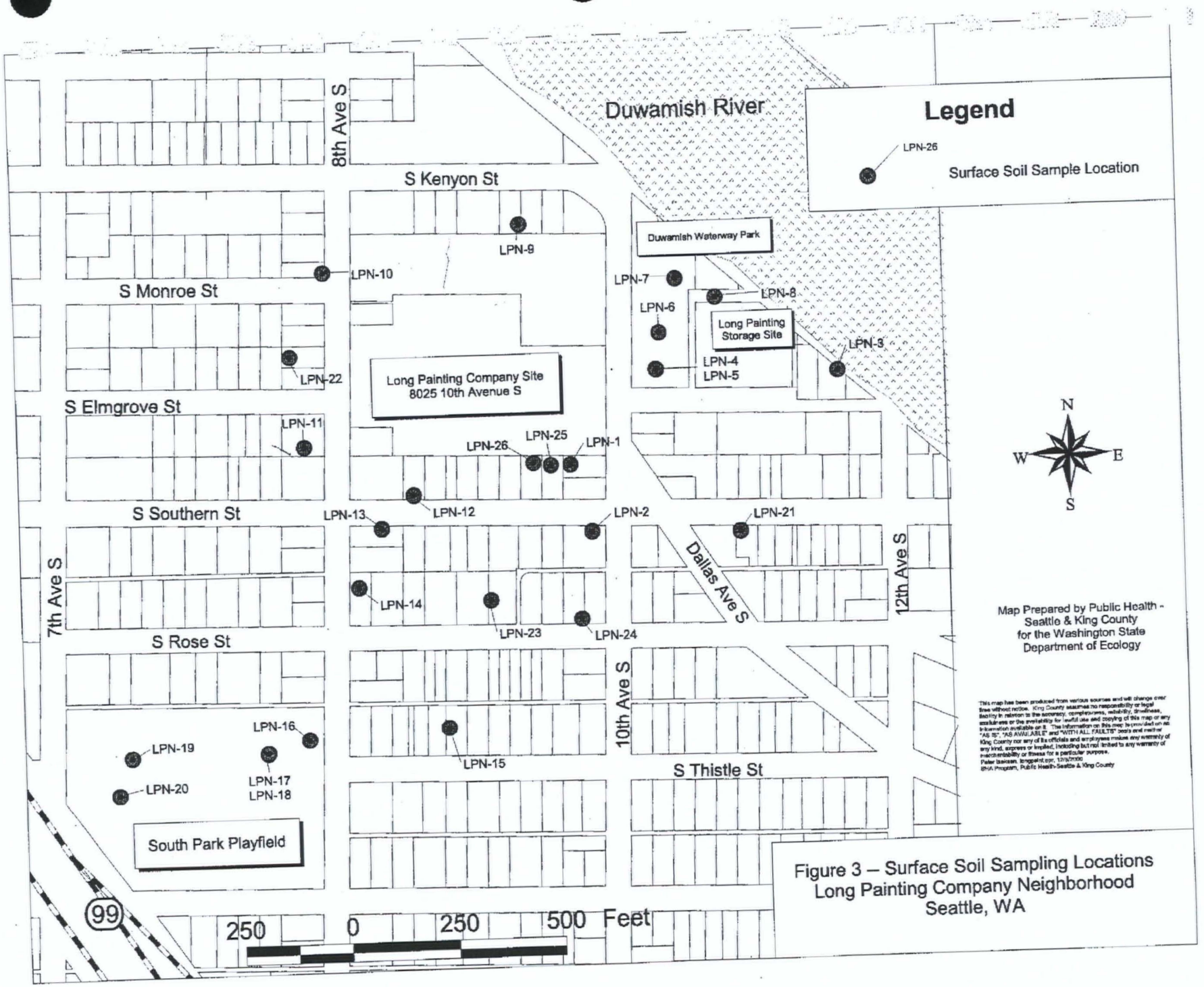


Figure 3 – Surface Soil Sampling Locations
Long Painting Company Neighborhood
Seattle, WA

LP_00565

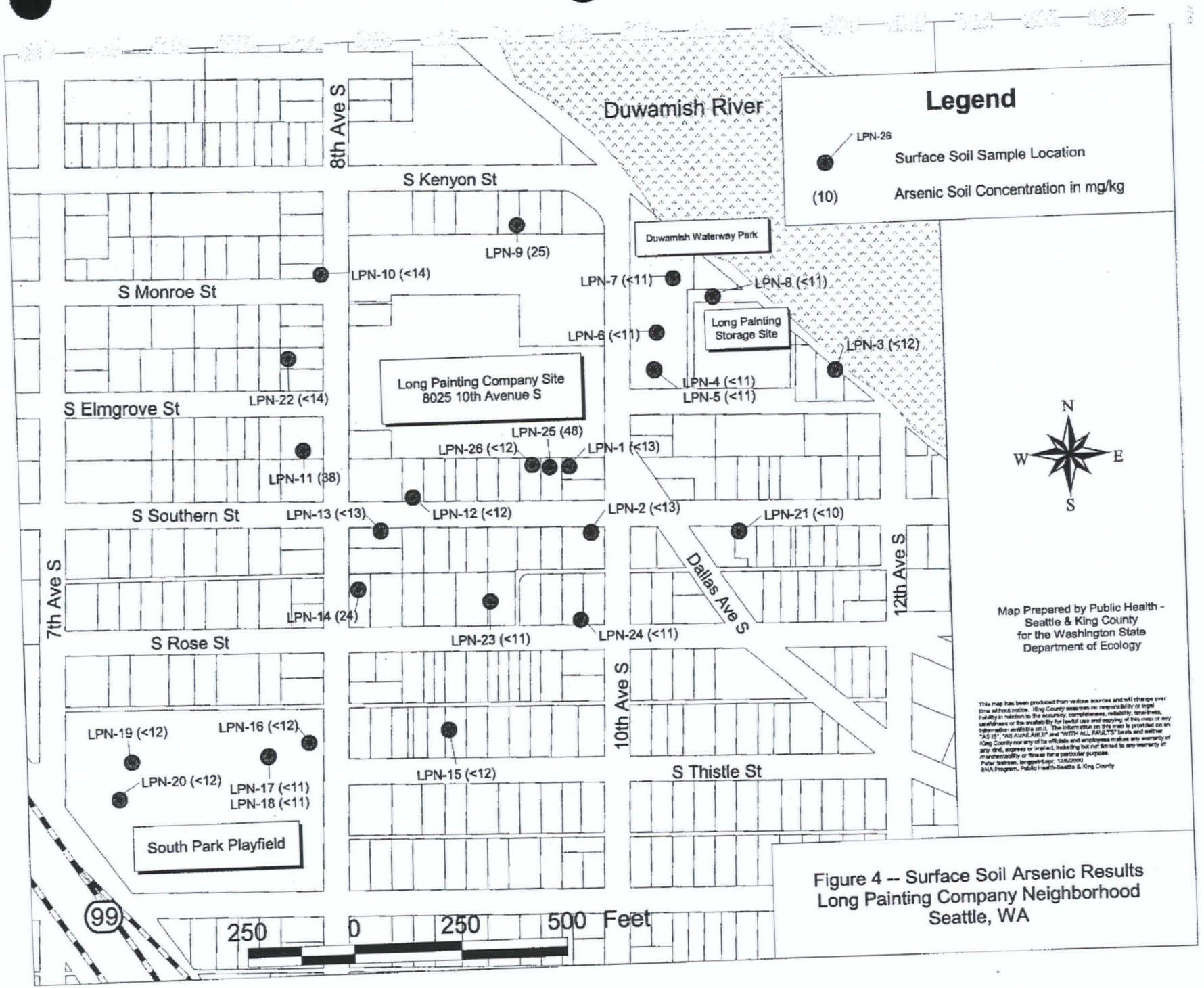


Figure 4 -- Surface Soil Arsenic Results
Long Painting Company Neighborhood
Seattle, WA

LP_00566

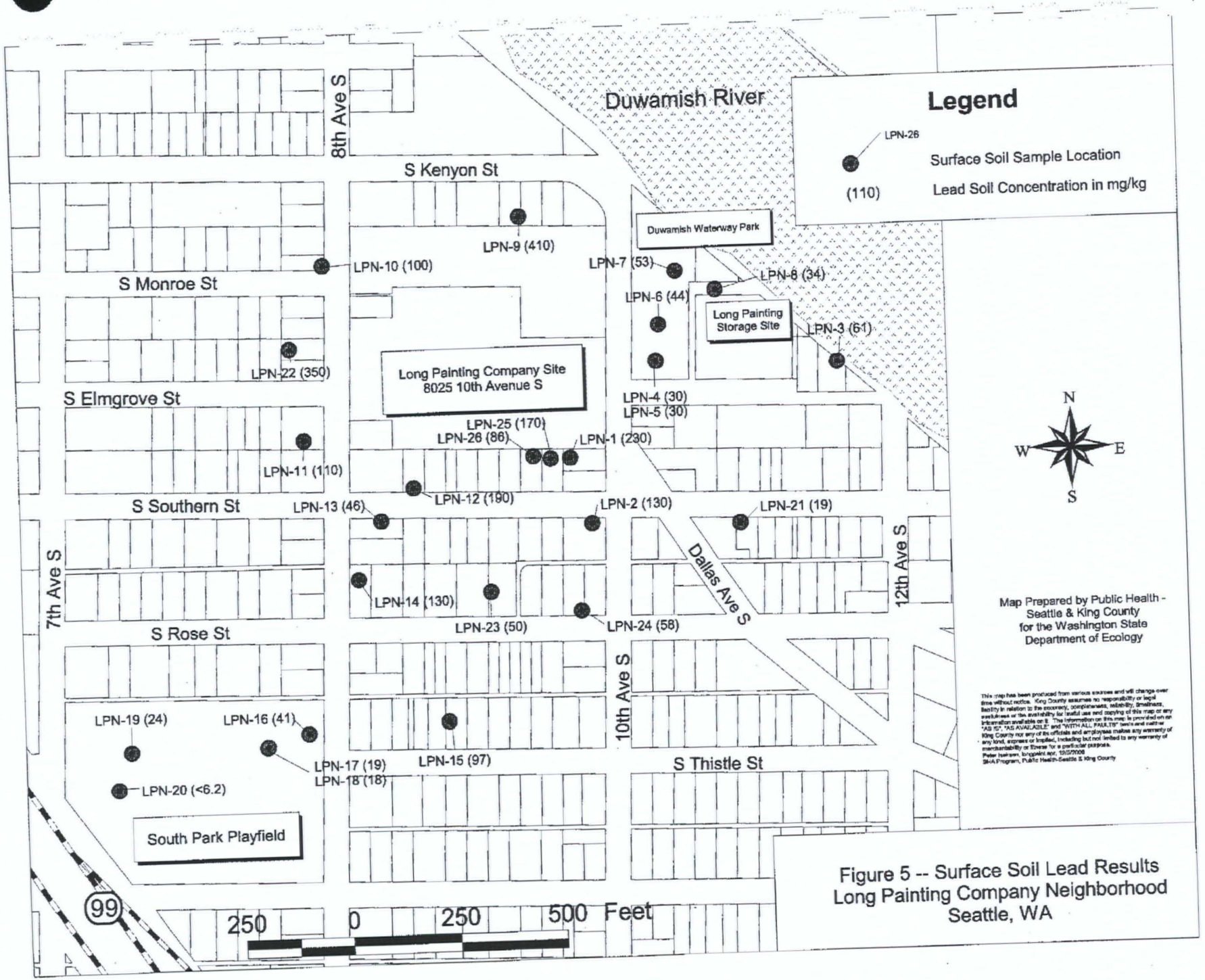


Figure 5 -- Surface Soil Lead Results
Long Painting Company Neighborhood
Seattle, WA

LP_00567

Appendix A

Laboratory Analytical Results

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

November 22, 2000

Peter Isaksen
Seattle - King County
Department of Public Health
1st Interstate Center
999 3rd Avenue, Suite 700
Seattle, WA 98104-4099

Re: Analytical Data for Project Long Paint Neighborhood
Laboratory Reference No. 0010-181

Dear Peter:

Enclosed are the analytical results and associated quality control data for samples submitted on October 17, 2000.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B

Date Extracted:	10-20-00
Date Analyzed:	11-17-00
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
LPN#1	10-181-01	**ND**	0.31
LPN#2	10-181-02	**ND**	0.32
LPN#3	10-181-03	**ND**	0.30
LPN#4	10-181-04	**ND**	0.27
LPN#5	10-181-05	**ND**	0.27
LPN#6	10-181-06	**ND**	0.27
LPN#7	10-181-07	**ND**	0.27
LPN#8	10-181-08	**ND**	0.27
LPN#9	10-181-09	**ND**	0.39
LPN#10	10-181-10	**ND**	0.34
LPN#11	10-181-11	**ND**	0.34
LPN#12	10-181-12	**ND**	0.32
LPN#13	10-181-13	**ND**	0.32

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B

Date Extracted:	10-20-00
Date Analyzed:	11-17-00
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID	Lab ID	Result	PQL
LPN#14	10-181-14	**ND**	0.33
LPN#15	10-181-15	**ND**	0.30
LPN#16	10-181-16	**ND**	0.30
LPN#17	10-181-17	**ND**	0.27
LPN#18	10-181-18	**ND**	0.27
LPN#19	10-181-19	**ND**	0.31
LPN#20	10-181-20	**ND**	0.31
LPN#21	10-181-21	**ND**	0.26
LPN#22	10-181-22	**ND**	0.34
LPN#23	10-181-23	**ND**	0.28
LPN#24	10-181-24	**ND**	0.27
LPN#25	10-181-25	**ND**	0.29
LPN#26	10-181-26	**ND**	0.30

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-20-00
Date Analyzed:	11-17-00
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1020S1

Analyte	Method	Result	PQL
Beryllium	6010B	**ND**	0.25

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	10-20-00
Date Analyzed:	11-17-00
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1020S2

Analyte	Method	Result	PQL
Beryllium	6010B	**ND**	0.25

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 10-20-00
Date Analyzed: 11-17-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-01

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Beryllium	**ND**	**ND**	NA		0.25

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 10-20-00
Date Analyzed: 11-17-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-21

Analyte	Sample Result	Duplicate Result	RPD	Flags	PQL
Beryllium	**ND**	**ND**	NA		0.25

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 10-20-00
Date Analyzed: 11-17-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Beryllium	50	**48.5**	97	**47.6**	95	1.9	

Date of Report: November 22, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL BERYLLIUM
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 10-20-00
Date Analyzed: 11-17-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-21

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Beryllium	50	**47.6**	95	**48.6**	97	2.0	

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

O - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a silica gel cleanup procedure.

Y - Sample extract treated with an acid cleanup procedure.

Z -

ND - Not Detected at PQL
MRL - Method Reporting Limit
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Day ☐ 3 Day

☑ Standard
(Hydrocarbon analyses: 5 days, All other analyses: 7 days)

☐ 10/25 (other)

Project Chemist: DB

Laboratory No. 10-181

Company: PHS+KC

Project No.: Site Hazard Assessment

Project Name: Long Point Neighborhood

Project Manager: Peter Isaksen

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI					% Moisture
1	LPN #1	10/17/00	9:40	S	1														✓	✓					X
2	LPN #2	"	9:50	S	1														✓	✓					X
3	LPN #3	"	10:00	S	1														✓	✓					X
4	LPN #4	"	10:10	S	1														✓	✓					X
5	LPN #5	"	10:12	S	1														✓	✓					X
6	LPN #6	"	10:20	S	1														✓	✓					X
7	LPN #7	"	10:26	S	1														✓	✓					X
8	LPN #8	"	10:35	S	1														✓	✓					X
9	LPN #9	"	10:43	S	1														✓	✓					X
10	LPN #10	"	10:55	S	1														✓	✓					X
11	LPN #11	"	11:08	S	1														✓	✓					X
12	LPN #12	"	11:17	S	1														✓	✓					X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
	10/17/2000		10/17/00
FIRM PHS+KC	TIME 17:10	FIRM OSE	TIME 5:10pm
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

LP_00579

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: PHS+KC
Project No.: Site Hazard Assessment
Project Name: Long Point Neighborhood
Project Manager: Peter Isaksen

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
- ☐ 10/25 (other)

Project Chemist: DB

Laboratory No. 10-181

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI					% Moisture
13	LPN #13	10/17/00	11:23	S	1														✓	✓					X
14	LPN # 14	"	11:30	S	1														✓	✓					X
15	LPN # 15	"	11:42	S	1														✓	✓					X
16	LPN # 16	"	12:00	S	1														✓	✓					X
17	LPN # 17	"	1206	S	1														✓	✓					X
18	LPN # 18	"	12:08	S	1														✓	✓					X
19	LPN # 19	"	12:12	S	1														✓	✓					X
20	LPN # 20	"	12:15	S	1														✓	✓					X
21	LPN # 21	"	13:35	S	1														✓	✓					X
22	LPN # 22	"	13:47	S	1														✓	✓					X
23	LPN # 23	"	13:57	S	1														✓	✓					X
24	LPN # 24	"	14:09	S	1														✓	✓					X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Peter Isaksen	10/17/2000		10/17/00
FIRM PHS+KC	TIME 17:10	FIRM OSE	TIME 5:10
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

LP_00580

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Company: PH St KC
Project No.: Site Hazard Assessment
Project Name: Long Paint Neighborhood
Project Manager: Peter Isaksen

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
- ☐ 10/25 (other)

Project Chemist: DB

Laboratory No. 10-181

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI				% Moisture
25	LPN #25	10/17/00	14:16	S	1														✓	✓				X
26	LPN #26	10/17/00	14:23	S	1														✓	✓				X

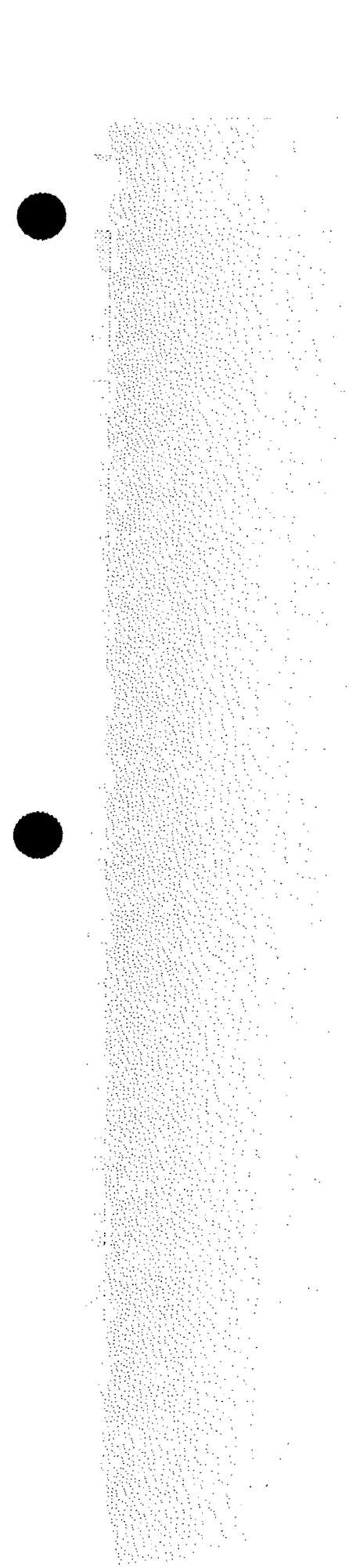
RELINQUISHED BY	DATE	RECEIVED BY	DATE
Peter Isaksen	10/17/2000	[signature]	10/17/00
FIRM PHSA KC	TIME 17:10	FIRM OSE	TIME 5:10
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

LP_00581



OnSite
Environmental Inc.
Analytical Testing and Mobile Laboratory Services

November 2, 2000

Peter Isaksen
Seattle - King County
Department of Public Health
1st Interstate Center
999 3rd Avenue, Suite 700
Seattle, WA 98104-4099

Re: Analytical Data for Project Long Paint Neighborhood
Laboratory Reference No. 0010-181

Dear Peter:

Enclosed are the analytical results and associated quality control data for samples submitted on October 17, 2000.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East o Tacoma, WA 98424
(253) 922-2310 o FAX (253) 922-5047
e-mail: info@saslab.com

TRANSMITTAL MEMORANDUM

DATE: October 26, 2000

TO: David Baumeister
OnSite Environmental, Inc.
14648 N. E. 95th St.
Redmond, WA 98052

PROJECT: SITE HAZARD ASSESSMENT-LONGPAINT NEIGHBORHOOD

REPORT NUMBER: 93474

Enclosed are the test results for twenty-six samples received at Sound Analytical Services on October 18, 2000.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Stan Palmquist
Project Manager

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#1
Lab ID:	93474-01
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	79.08

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#2
Lab ID:	93474-02
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	78.09

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#3
Lab ID:	93474-03
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	84.13

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#4
Lab ID:	93474-04
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	91.77

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#5
Lab ID:	93474-05
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	92.05

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#6
Lab ID:	93474-06
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	92.75

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.099	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#7
Lab ID:	93474-07
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	93.17

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#8
Lab ID:	93474-08
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	95.37

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#9
Lab ID:	93474-09
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	65.95

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.14	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#10
Lab ID:	93474-10
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	74.68

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.13	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#11
Lab ID:	93474-11
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	71.95

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.13	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#12
Lab ID:	93474-12
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	83.69

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#13
Lab ID:	93474-13
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	79.18

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#14
Lab ID:	93474-14
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	79.99

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#15
Lab ID:	93474-15
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	84.14

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#16
Lab ID:	93474-16
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	86.38

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#17
Lab ID:	93474-17
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	91.59

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#18
Lab ID:	93474-18
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	91.02

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#19
Lab ID:	93474-19
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	80.12

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#20
Lab ID:	93474-20
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	82.2

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#21
Lab ID:	93474-21
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	97.67

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.094	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#22
Lab ID:	93474-22
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	77.76

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#23
Lab ID:	93474-23
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	88.44

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#24
Lab ID:	93474-24
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	93.39

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.092	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#25
Lab ID:	93474-25
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	86.31

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.11	

SOUND ANALYTICAL SERVICES, INC.

Client Name	OnSite Environmental, Inc.
Client ID:	LPN#26
Lab ID:	93474-26
Date Received:	10/18/00
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5
% Solids	85.94

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - CR045S
Date Received:	-
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - CR046S
Date Received:	-
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
Dilution Factor	0.5

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Hexavalent Chromium	ND	0.1	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID:	BG-02-CC
Lab ID:	93330-02
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
QC Batch ID:	CR045S

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Chromium	0.464	20.2	7.98	37	x7

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	CR045S
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
QC Batch ID:	CR045S

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Chromium	0	20	17.3	86.7	17.7	88.3	1.8	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID:	LPN#16
Lab ID:	93474-16
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
QC Batch ID:	CR046S

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Chromium	0	22.6	17.8	79	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	BG-02-CC
Lab ID:	93330-02
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
QC Batch ID:	CR045S

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Chromium	0.46	1.1	-82.0	x4a

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	LPN#16
Lab ID:	93474-16
Date Prepared:	10/24/00
Date Analyzed:	10/25/00
QC Batch ID:	CR046S

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Chromium	0	0	NC	

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East o Tacoma, WA 98424
(253) 922-2310 o FAX (253) 922-5047
e-mail: info@saslab.com

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

N: See analytical narrative.

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

93474 11/4

CHAIN OF CUSTODY RECORD

(FOR SUBCONTRACT LABORATORY)

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

OSE Traveler Number: 10-181

Project Manager: David Baumeister
Project Number: Site Hazard Assessment
Project Name: Longfaint Neighborhood

dash	Sample Number/Name	Date Sampled	Matrix	# Jars	Analysis Requested	Comments
	LPN # 1	10/17/00	Soil	1	Chrome VI	
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					

Submitted:		date: 10/18/00	Received by: Joe Palmquist	date:	10-18-00
Firm:	OSE	time: 11:05	Firm: SAS	time:	11:05
Submitted:	Joe Palmquist	date: 10-18	Received by: A Strom	date:	10/18/00
Firm:	SAS	time: 1:00 P	Firm: A Strom	time:	100

LP_00619

CHAIN OF CUSTODY RECORD

(FOR SUBCONTRACT LABORATORY)

OnSite Environmental Inc.

4648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

OSE Traveler Number: 10-181

Project Manager: David Baumeister

Project Number: Site Hazard Assessment

Project Name: Long Paint Neighborhood

dash	Sample Number/Name	Date Sampled	Matrix	# Jars	Analysis Requested	Comments
	LPN #13	10/17/00	Soil	1	Chrome VI	
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					

Submitted:		date: 10/18/00	Received by:	date:	10-18-00
Firm:	OSE	time: 11:05	Firm:	time:	11:05
Submitted:		date: 10-18	Received by:	date:	10/18/00
Firm:	STAS	time: 1:51 P	Firm:	time:	100

LP_00620

CHAIN OF CUSTODY RECORD

(FOR SUBCONTRACT LABORATORY)

OnSite Environmental Inc.

4648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

OSE Traveler Number: 10-181

Project Manager: David Baumeister

Project Number: Site Hazard Assessment

Project Name: Long Paint Neighborhood

Dash	Sample Number/Name	Date Sampled	Matrix	# Jars	Analysis Requested	Comments
	LPN# 25	10/17/00	Soil	1	Chrome VI	
	↓ 26	↓	↓	↓	↓	

Submitted:		date: 10/18/00	Received by:	date:	10-18-00
Firm:	OSE	time: 11:05	Firm: SAS	time:	11:05 A
Submitted:	JS Palmer	date: 10-18	Received by: A Strom	date:	10/18/00
Firm:	SAS	time: 1:00 P	Firm: A Strom	time:	100

LP_00621

Chain of Custody

Page 1 of 3

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
☐ 10/25 (other)

Project Chemist: DB

Laboratory No. 10-181

Company: PHS+KC
Project No.: Site Hazard Assessment
Project Name: Long Paint Neighborhood
Project Manager: Peter Isaksen

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI					% Moisture
1	LPN #1	10/17/00	9:40	S	1														✓	✓					X
2	LPN #2	"	9:50	S	1														✓	✓					X
3	LPN #3	"	10:00	S	1														✓	✓					X
4	LPN #4	"	10:10	S	1														✓	✓					X
5	LPN #5	"	10:12	S	1														✓	✓					X
6	LPN #6	"	10:20	S	1														✓	✓					X
7	LPN #7	"	10:26	S	1														✓	✓					X
8	LPN #8	"	10:35	S	1														✓	✓					X
9	LPN #9	"	10:43	S	1														✓	✓					X
10	LPN #10	"	10:55	S	1														✓	✓					X
11	LPN #11	"	11:08	S	1														✓	✓					X
12	LPN #12	"	11:17	S	1														✓	✓					X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
	10/17/2000		10/17/00
FIRM PHS+KC	TIME 17:10	FIRM OSE	TIME 5:10pm
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

LP_00622

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
☐ 10/05 (other)

Project Chemist: DB

Laboratory No. 10-181

Company: PHS+KC
Project No.: Site Hazard Assessment
Project Name: Long Point Neighborhood
Project Manager: Peter Isaksen

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chromium VI					% Moisture
13	LPN # 13	10/17/00	11:23	S	1														✓	✓					X
14	LPN # 14	"	11:30	S	1														✓	✓					X
15	LPN # 15	"	11:42	S	1														✓	✓					X
16	LPN # 16	"	12:00	S	1														✓	✓					X
17	LPN # 17	"	12:05	S	1														✓	✓					X
18	LPN # 18	"	12:08	S	1														✓	✓					X
19	LPN # 19	"	12:12	S	1														✓	✓					X
20	LPN # 20	"	12:15	S	1														✓	✓					X
21	LPN # 21	"	13:35	S	1														✓	✓					X
22	LPN # 22	"	13:47	S	1														✓	✓					X
23	LPN # 23	"	13:57	S	1														✓	✓					X
24	LPN # 24	"	14:09	S	1														✓	✓					X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Peter Isaksen	10/17/2000		10/17/00
FIRM PHS+KC	TIME 17:10	FIRM OSE	TIME 5:10
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

LP_00623

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
☐ 10/25 (other)

Company: PH St KC
Project No.: Site Hazard Assessment
Project Name: Long Point Neighborhood
Project Manager: Peter Isaksen

Project Chemist: DB

Laboratory No. 10-181

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI					% Moisture
25	LPN #25	10/17/00	14:16	S	1														✓	✓					X
26	LPN #26	10/17/00	14:23	S	1														✓	✓					X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
	10/17/2000		10/17/00
FIRM PHSA KC	TIME 17:10	FIRM Esat	TIME 5:10
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

LP_00624

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

October 26, 2000

Peter Isaksen
Seattle - King County
Department of Public Health
1st Interstate Center
999 3rd Avenue, Suite 700
Seattle, WA 98104-4099

Re: Analytical Data for Project Long Paint Neighborhood
Laboratory Reference No. 0010-181

Dear Peter:

Enclosed are the analytical results and associated quality control data for samples submitted on October 17, 2000. **Please note that the subcontracted Chromium VI will follow in a later report.**

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881 • Fax (425) 885-4603

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-01
Client ID: LPN#1

Analyte	Method	Result	PQL
Antimony	6010B	ND	6.3
Arsenic	6010B	ND	13
Beryllium	6010B	ND	0.63
Cadmium	6010B	0.63	0.63
Chromium	6010B	18	0.63
Copper	6010B	64	0.63
Lead	6010B	230	6.3
Mercury	7471A	ND	0.31
Nickel	6010B	13	1.3
Selenium	6010B	ND	13
Silver	6010B	ND	0.63
Thallium	6010B	ND	6.3
Zinc	6010B	360	3.1

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-02
Client ID: LPN#2

Analyte	Method	Result	PQL
Antimony	6010B	ND	6.3
Arsenic	6010B	ND	13
Beryllium	6010B	ND	0.63
Cadmium	6010B	0.80	0.63
Chromium	6010B	39	0.63
Copper	6010B	36	0.63
Lead	6010B	130	6.3
Mercury	7471A	ND	0.32
Nickel	6010B	11	1.3
Selenium	6010B	ND	13
Silver	6010B	2.0	0.63
Thallium	6010B	ND	6.3
Zinc	6010B	210	3.2

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-03
Client ID: LPN#3

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.0
Arsenic	6010B	**ND**	12
Beryllium	6010B	**ND**	0.60
Cadmium	6010B	**ND**	0.60
Chromium	6010B	**8.7**	0.60
Copper	6010B	**20**	0.60
Lead	6010B	**61**	6.0
Mercury	7471A	**ND**	0.30
Nickel	6010B	**11**	1.2
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.60
Thallium	6010B	**ND**	6.0
Zinc	6010B	**83**	3.0

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-04
Client ID: LPN#4

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.5
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.55
Cadmium	6010B	**ND**	0.55
Chromium	6010B	**12**	0.55
Copper	6010B	**17**	0.55
Lead	6010B	**30**	5.5
Mercury	7471A	**ND**	0.27
Nickel	6010B	**11**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.55
Thallium	6010B	**ND**	5.5
Zinc	6010B	**110**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-05
Client ID: LPN#5

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.5
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.55
Cadmium	6010B	**ND**	0.55
Chromium	6010B	**13**	0.55
Copper	6010B	**19**	0.55
Lead	6010B	**30**	5.5
Mercury	7471A	**ND**	0.27
Nickel	6010B	**14**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.55
Thallium	6010B	**ND**	5.5
Zinc	6010B	**130**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-06
Client ID: LPN#6

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.4
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.54
Cadmium	6010B	**ND**	0.54
Chromium	6010B	**14**	0.54
Copper	6010B	**19**	0.54
Lead	6010B	**44**	5.4
Mercury	7471A	**ND**	0.27
Nickel	6010B	**13**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.54
Thallium	6010B	**ND**	5.4
Zinc	6010B	**110**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-07
Client ID: LPN#7

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.4
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.54
Cadmium	6010B	**ND**	0.54
Chromium	6010B	**12**	0.54
Copper	6010B	**18**	0.54
Lead	6010B	**53**	5.4
Mercury	7471A	**ND**	0.27
Nickel	6010B	**12**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.54
Thallium	6010B	**ND**	5.4
Zinc	6010B	**110**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-08
Client ID: LPN#8

Analyte	Method	Result	PQL
Antimony	6010B	ND	5.4
Arsenic	6010B	ND	11
Beryllium	6010B	ND	0.54
Cadmium	6010B	ND	0.54
Chromium	6010B	9.8	0.54
Copper	6010B	94	0.54
Lead	6010B	34	5.4
Mercury	7471A	ND	0.27
Nickel	6010B	18	1.1
Selenium	6010B	ND	11
Silver	6010B	ND	0.54
Thallium	6010B	ND	5.4
Zinc	6010B	220	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-09
Client ID: LPN#9

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	7.8
Arsenic	6010B	**25**	16
Beryllium	6010B	**ND**	0.78
Cadmium	6010B	**ND**	0.78
Chromium	6010B	**15**	0.78
Copper	6010B	**51**	0.78
Lead	6010B	**410**	7.8
Mercury	7471A	**ND**	0.39
Nickel	6010B	**13**	1.6
Selenium	6010B	**ND**	16
Silver	6010B	**ND**	0.78
Thallium	6010B	**ND**	7.8
Zinc	6010B	**250**	3.9

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-10
Client ID: LPN#10

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.8
Arsenic	6010B	**ND**	14
Beryllium	6010B	**ND**	0.68
Cadmium	6010B	**ND**	0.68
Chromium	6010B	**11**	0.68
Copper	6010B	**35**	0.68
Lead	6010B	**100**	6.8
Mercury	7471A	**ND**	0.34
Nickel	6010B	**12**	1.4
Selenium	6010B	**ND**	14
Silver	6010B	**ND**	0.68
Thallium	6010B	**ND**	6.8
Zinc	6010B	**170**	3.4

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-11
Client ID: LPN#11

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.8
Arsenic	6010B	**38**	14
Beryllium	6010B	**ND**	0.68
Cadmium	6010B	**ND**	0.68
Chromium	6010B	**8.5**	0.68
Copper	6010B	**30**	0.68
Lead	6010B	**110**	6.8
Mercury	7471A	**ND**	0.34
Nickel	6010B	**11**	1.4
Selenium	6010B	**ND**	14
Silver	6010B	**ND**	0.68
Thallium	6010B	**ND**	6.8
Zinc	6010B	**110**	3.4

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-12
Client ID: LPN#12

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.4
Arsenic	6010B	**ND**	13
Beryllium	6010B	**ND**	0.64
Cadmium	6010B	**0.68**	0.64
Chromium	6010B	**11**	0.64
Copper	6010B	**34**	0.64
Lead	6010B	**190**	6.4
Mercury	7471A	**ND**	0.32
Nickel	6010B	**13**	1.3
Selenium	6010B	**ND**	13
Silver	6010B	**ND**	0.64
Thallium	6010B	**ND**	6.4
Zinc	6010B	**140**	3.2

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-13
Client ID: LPN#13

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.3
Arsenic	6010B	**ND**	13
Beryllium	6010B	**ND**	0.63
Cadmium	6010B	**ND**	0.63
Chromium	6010B	**8.9**	0.63
Copper	6010B	**18**	0.63
Lead	6010B	**46**	6.3
Mercury	7471A	**ND**	0.32
Nickel	6010B	**8.5**	1.3
Selenium	6010B	**ND**	13
Silver	6010B	**ND**	0.63
Thallium	6010B	**ND**	6.3
Zinc	6010B	**61**	3.2

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-14
Client ID: LPN#14

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.6
Arsenic	6010B	**24**	13
Beryllium	6010B	**ND**	0.66
Cadmium	6010B	**0.72**	0.66
Chromium	6010B	**13**	0.66
Copper	6010B	**66**	0.66
Lead	6010B	**130**	6.6
Mercury	7471A	**ND**	0.33
Nickel	6010B	**12**	1.3
Selenium	6010B	**ND**	13
Silver	6010B	**ND**	0.66
Thallium	6010B	**ND**	6.6
Zinc	6010B	**220**	3.3

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-15
Client ID: LPN#15

Analyte	Method	Result	PQL
Antimony	6010B	ND	6.0
Arsenic	6010B	ND	12
Beryllium	6010B	ND	0.60
Cadmium	6010B	ND	0.60
Chromium	6010B	11	0.60
Copper	6010B	25	0.60
Lead	6010B	97	6.0
Mercury	7471A	ND	0.30
Nickel	6010B	7.1	1.2
Selenium	6010B	ND	12
Silver	6010B	ND	0.60
Thallium	6010B	ND	6.0
Zinc	6010B	67	3.0

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-16
Client ID: LPN#16

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.0
Arsenic	6010B	**ND**	12
Beryllium	6010B	**ND**	0.60
Cadmium	6010B	**ND**	0.60
Chromium	6010B	**13**	0.60
Copper	6010B	**22**	0.60
Lead	6010B	**41**	6.0
Mercury	7471A	**ND**	0.30
Nickel	6010B	**11**	1.2
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.60
Thallium	6010B	**ND**	6.0
Zinc	6010B	**63**	3.0

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-17
Client ID: LPN#17

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.5
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.55
Cadmium	6010B	**ND**	0.55
Chromium	6010B	**10**	0.55
Copper	6010B	**12**	0.55
Lead	6010B	**19**	5.5
Mercury	7471A	**ND**	0.27
Nickel	6010B	**11**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.55
Thallium	6010B	**ND**	5.5
Zinc	6010B	**30**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-18
Client ID: LPN#18

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.5
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.55
Cadmium	6010B	**ND**	0.55
Chromium	6010B	**10**	0.55
Copper	6010B	**13**	0.55
Lead	6010B	**18**	5.5
Mercury	7471A	**ND**	0.27
Nickel	6010B	**11**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.55
Thallium	6010B	**ND**	5.5
Zinc	6010B	**31**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-19
Client ID: LPN#19

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.2
Arsenic	6010B	**ND**	12
Beryllium	6010B	**ND**	0.62
Cadmium	6010B	**ND**	0.62
Chromium	6010B	**8.6**	0.62
Copper	6010B	**15**	0.62
Lead	6010B	**24**	6.2
Mercury	7471A	**ND**	0.31
Nickel	6010B	**19**	1.2
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.62
Thallium	6010B	**ND**	6.2
Zinc	6010B	**79**	3.1

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-20
Client ID: LPN#20

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.2
Arsenic	6010B	**ND**	12
Beryllium	6010B	**ND**	0.62
Cadmium	6010B	**ND**	0.62
Chromium	6010B	**15**	0.62
Copper	6010B	**14**	0.62
Lead	6010B	**ND**	6.2
Mercury	7471A	**ND**	0.31
Nickel	6010B	**22**	1.2
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.62
Thallium	6010B	**ND**	6.2
Zinc	6010B	**35**	3.1

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-21
Client ID: LPN#21

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.1
Arsenic	6010B	**ND**	10
Beryllium	6010B	**ND**	0.51
Cadmium	6010B	**ND**	0.51
Chromium	6010B	**5.0**	0.51
Copper	6010B	**6.3**	0.51
Lead	6010B	**19**	5.1
Mercury	7471A	**ND**	0.26
Nickel	6010B	**3.0**	1.0
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.51
Thallium	6010B	**ND**	5.1
Zinc	6010B	**31**	2.6

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-22
Client ID: LPN#22

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.8
Arsenic	6010B	**ND**	14
Beryllium	6010B	**ND**	0.68
Cadmium	6010B	**1.5**	0.68
Chromium	6010B	**15**	0.68
Copper	6010B	**58**	0.68
Lead	6010B	**350**	6.8
Mercury	7471A	**ND**	0.34
Nickel	6010B	**15**	1.4
Selenium	6010B	**ND**	14
Silver	6010B	**ND**	0.68
Thallium	6010B	**ND**	6.8
Zinc	6010B	**300**	3.4

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-23
Client ID: LPN#23

Analyte	Method	Result	PQL
Antimony	6010B	ND	5.6
Arsenic	6010B	ND	11
Beryllium	6010B	ND	0.56
Cadmium	6010B	ND	0.56
Chromium	6010B	11	0.56
Copper	6010B	19	0.56
Lead	6010B	50	5.6
Mercury	7471A	ND	0.28
Nickel	6010B	8.3	1.1
Selenium	6010B	ND	11
Silver	6010B	ND	0.56
Thallium	6010B	ND	5.6
Zinc	6010B	88	2.8

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-24
Client ID: LPN#24

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.4
Arsenic	6010B	**ND**	11
Beryllium	6010B	**ND**	0.54
Cadmium	6010B	**ND**	0.54
Chromium	6010B	**10**	0.54
Copper	6010B	**21**	0.54
Lead	6010B	**58**	5.4
Mercury	7471A	**ND**	0.27
Nickel	6010B	**11**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.54
Thallium	6010B	**ND**	5.4
Zinc	6010B	**100**	2.7

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-25
Client ID: LPN#25

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	5.7
Arsenic	6010B	**48**	11
Beryllium	6010B	**ND**	0.57
Cadmium	6010B	**0.71**	0.57
Chromium	6010B	**23**	0.57
Copper	6010B	**39**	0.57
Lead	6010B	**170**	5.7
Mercury	7471A	**ND**	0.29
Nickel	6010B	**11**	1.1
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.57
Thallium	6010B	**ND**	5.7
Zinc	6010B	**510**	2.9

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-26
Client ID: LPN#26

Analyte	Method	Result	PQL
Antimony	6010B	**ND**	6.0
Arsenic	6010B	**ND**	12
Beryllium	6010B	**ND**	0.60
Cadmium	6010B	**ND**	0.60
Chromium	6010B	**12**	0.60
Copper	6010B	**19**	0.60
Lead	6010B	**86**	6.0
Mercury	7471A	**ND**	0.30
Nickel	6010B	**8.5**	1.2
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.60
Thallium	6010B	**ND**	6.0
Zinc	6010B	**300**	3.0

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB1020S1&MB1024S1

Analyte	Method	Result	PQL
Antimony	6010B	ND	5.0
Arsenic	6010B	ND	10
Beryllium	6010B	ND	0.50
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Copper	6010B	ND	0.50
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Nickel	6010B	ND	1.0
Selenium	6010B	ND	10
Silver	6010B	ND	0.50
Thallium	6010B	ND	1.0
Zinc	6010B	ND	2.5

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB1020S2&MB1024S2

Analyte	Method	Result	PQL
Antimony	6010B	ND	5.0
Arsenic	6010B	ND	10
Beryllium	6010B	ND	0.50
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Copper	6010B	ND	0.50
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Nickel	6010B	ND	1.0
Selenium	6010B	ND	10
Silver	6010B	ND	0.50
Thallium	6010B	ND	1.0
Zinc	6010B	ND	2.5

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Antimony	ND	ND	NA	5.0	
Arsenic	ND	ND	NA	10	
Beryllium	ND	ND	NA	0.50	
Cadmium	0.500	ND	NA	0.50	
Chromium	14.8	15.3	3.3	0.50	
Copper	51.6	50.2	2.6	0.50	
Lead	184	188	2.1	5.0	
Mercury	ND	ND	NA	0.25	
Nickel	10.1	10.5	3.1	1.0	
Selenium	ND	ND	NA	10	
Silver	ND	ND	NA	0.50	
Thallium	ND	ND	NA	1.0	
Zinc	292	275	5.9	2.5	

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-21

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Antimony	**ND**	**ND**	NA	5.0	
Arsenic	**ND**	**ND**	NA	10	
Beryllium	**ND**	**ND**	NA	0.50	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**4.90**	**5.70**	15	0.50	
Copper	**6.15**	**6.91**	12	0.50	
Lead	**19.0**	**22.4**	16	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Nickel	**2.99**	**4.64**	43	1.0	C
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	
Thallium	**ND**	**ND**	NA	1.0	
Zinc	**30.1**	**45.5**	41	2.5	K

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Antimony	500	**303**	61	**297**	59	1.9	
Arsenic	100	**111**	111	**99.6**	100	11	
Beryllium	50	**45.8**	92	**45.5**	91	0.72	
Cadmium	50	**44.8**	89	**44.2**	87	1.3	
Chromium	100	**103**	88	**102**	87	1.5	
Copper	50	**84.2**	65	**92.5**	82	9.4	
Lead	250	**386**	81	**407**	89	5.2	
Mercury	1.0	**1.05**	105	**1.05**	105	0.57	
Nickel	200	**196**	93	**193**	91	1.4	
Selenium	100	**101**	101	**101**	101	0	
Silver	50	**46.9**	94	**47.5**	95	1.3	
Thallium	100	**88.4**	88	**85.9**	86	2.9	
Zinc	50	**261**	-61	**290**	-2	11	A

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 10-20&24-00
Date Analyzed: 10-20,23,24&25-00

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 10-181-21

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Antimony	500	**417**	83	**429**	86	2.7	
Arsenic	100	**106**	106	**109**	109	2.6	
Beryllium	50	**44.0**	88	**44.9**	90	2.0	
Cadmium	50	**50.5**	101	**51.0**	102	0.89	
Chromium	100	**96.0**	91	**95.7**	91	0.37	
Copper	50	**49.4**	87	**48.9**	85	1.1	
Lead	250	**252**	93	**252**	93	0	
Mercury	1.0	**1.05**	105	**1.05**	105	0	
Nickel	200	**183**	90	**181**	89	1.2	
Selenium	100	**92.0**	92	**90.1**	90	2.1	
Silver	50	**47.4**	95	**44.0**	88	7.4	
Thallium	100	**86.4**	86	**88.4**	88	2.2	
Zinc	50	**72.7**	85	**67.4**	74	7.7	

Date of Report: October 26, 2000
Samples Submitted: October 17, 2000
Lab Traveler: 10-181
Project: Long Paint Neighborhood

% MOISTURE

Date Analyzed: 10-18-00

Client ID	Lab ID	% Moisture
LPN#1	10-181-01	20
LPN#2	10-181-02	21
LPN#3	10-181-03	17
LPN#4	10-181-04	9.0
LPN#5	10-181-05	9.0
LPN#6	10-181-06	8.0
LPN#7	10-181-07	7.0
LPN#8	10-181-08	7.0
LPN#9	10-181-09	36
LPN#10	10-181-10	26
LPN#11	10-181-11	27
LPN#12	10-181-12	22
LPN#13	10-181-13	21
LPN#14	10-181-14	24
LPN#15	10-181-15	17
LPN#16	10-181-16	17
LPN#17	10-181-17	9.0
LPN#18	10-181-18	9.0
LPN#19	10-181-19	19
LPN#20	10-181-20	19
LPN#21	10-181-21	2.0
LPN#22	10-181-22	27
LPN#23	10-181-23	10
LPN#24	10-181-24	7.0
LPN#25	10-181-25	13
LPN#26	10-181-26	16

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DATA QUALIFIERS AND ABBREVIATIONS

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

O - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a silica gel cleanup procedure.

Y - Sample extract treated with an acid cleanup procedure.

Z -

ND - Not Detected at PQL
MRL - Method Reporting Limit
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 3

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Fax: (425) 885-4603 • Phone: (425) 883-3881

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☑ Standard
(Hydrocarbon analyses: 5 days, All other analyses: 7 days)
☐ 10/25 (other)

Project Chemist: DB

Laboratory No. 10-181

Company: PHS+KC
Project No.: Site Hazard Assessment
Project Name: Long Paint Neighborhood
Project Manager: Peter Isaksen

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI					% Moisture
1	LPN #1	10/17/00	9:40	S	1														✓	✓					X
2	LPN #2	"	9:50	S	1														✓	✓					X
3	LPN #3	"	10:00	S	1														✓	✓					X
4	LPN #4	"	10:10	S	1														✓	✓					X
5	LPN #5	"	10:12	S	1														✓	✓					X
6	LPN #6	"	10:20	S	1														✓	✓					X
7	LPN #7	"	10:26	S	1														✓	✓					X
8	LPN #8	"	10:35	S	1														✓	✓					X
9	LPN #9	"	10:43	S	1														✓	✓					X
10	LPN #10	"	10:55	S	1														✓	✓					X
11	LPN #11	"	11:08	S	1														✓	✓					X
12	LPN #12	"	11:17	S	1														✓	✓					X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
PHS+KC	10/17/2000	OSE	10/17/00
FIRM	TIME	FIRM	TIME
PHS+KC	17:10	OSE	5:10pm
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

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Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
☐ 10/25 (other)

Company: PHS+KC
Project No.: Site Hazard Assessment
Project Name: Long Point Neighborhood
Project Manager: Peter Isaksen

Project Chemist: DB

Laboratory No. 10-181

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chromium VI				% Moisture
13	LPN #13	10/17/00	11:23	S	1														✓	✓				X
14	LPN # 14	"	11:30	S	1														✓	✓				X
15	LPN # 15	"	11:42	S	1														✓	✓				X
16	LPN # 16	"	12:00	S	1														✓	✓				X
17	LPN # 17	"	12:05	S	1														✓	✓				X
18	LPN # 18	"	12:08	S	1														✓	✓				X
19	LPN # 19	"	12:12	S	1														✓	✓				X
20	LPN # 20	"	12:15	S	1														✓	✓				X
21	LPN # 21	"	13:35	S	1														✓	✓				X
22	LPN # 22	"	13:47	S	1														✓	✓				X
23	LPN #23	"	13:57	S	1														✓	✓				X
24	LPN #24	"	14:09	S	1														✓	✓				X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Peter Isaksen	10/17/2000		10/17/00
FIRM PHS+KC	TIME 17:10	FIRM OSE	TIME 5:10
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☑ Standard
(Hydrocarbon analyses: 5 days, All other analyses: 7 days)
☐ 10/25 (other)

Project Chemist: DB

Laboratory No. 10-181

Company: PH St KC
Project No.: Site Hazard Assessment
Project Name: Long Paint Neighborhood
Project Manager: Peter Isaksen

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Total RCRA Metals (8)	TCLP Metals	VPH	EPH	Priority Pollutant Metals	Chrome VI					% Moisture
25	LPN #25	10/17/00	14:16	S	1														✓	✓					✓
26	LPN #26	10/17/00	14:23	S	1														✓	✓					✓

RELINQUISHED BY	DATE	RECEIVED BY	DATE
Peter Isaksen	10/17/2000		10/17/00
FIRM PHSKC	TIME 17:10	FIRM OSE	TIME 17:10
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

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LP_00663

Appendix B

Data Quality Summaries

DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM

M E M O R A N D U M

December 1, 2000

TO: Barbara Trejo
TCP @ NWRO

FROM: Stewart Lombard
EAP QA Coordinator

SUBJECT: Review of Long Painting Neighborhood Metals Data

I have reviewed the additional information related to the analysis of these samples provided by OnSite Environmental Inc. and can draw the following conclusions from the data package.

For metals other than Hg, the samples were digested in two batches, the first including Samples #1 - #20 and the second including Samples #21 – #26. Each batch included a method blank and check standard as well as an analytical duplicate, matrix spike (MS) and matrix spike duplicate (MSD) of samples 1 and 21, respectively.

All results in both method blanks were non-detects.

In the first digestion batch, recoveries for the check standard were 91 – 108%, within the prescribed limits of 90 - 110%.

In the MS, the recoveries for Sb and Cu were 61% and 65%, respectively, outside the prescribed limits of 75 - 125%. In the MSD, the recovery for Sb was 59%. **These QC results suggest that, for Sample #1, the Practical Quantitation Limit (PQL) for Sb and the concentration of Cu may be slightly higher than the reported values.**

The relative percent differences (RPDs) for the five metals which yielded numerical results in both the sample and the analytical duplicate ranged from 2.1% to 5.9%, well within the prescribed limit of 20%.

In the second digestion batch, recoveries for the check standard were below the prescribed limit for Be, Cu, Tl and Zn. **These QC results suggest that the PQLs for Be and Tl and the concentrations of Cu and Zn may be slightly higher than the reported values.**

In the MS and MSD, the recoveries for all the metals were within the prescribed limits with the exception of the recovery for Zn in the MSD, which was 74%.

The RPDs for Ni and Zn in the analytical duplicates were well above the prescribed limit. **These QC results suggest that the uncertainty in the values reported for Ni and Zn is unusually high. If these values are close to the decision levels, the uncertainty limits their use as the basis for any important decisions.**

For Hg, the samples were digested in a single batch which included two method blanks, and two check standards as well as analytical duplicates, MSs and MSDs of samples 1 and 21.

Hg results in both method blanks and all 26 samples were non-detects.

Recoveries for the check standard were 105 and 94%, within the prescribed limits of 90 - 110%.

In the MSs and MSDs, the recoveries for Hg were all within prescribed limits of 75 - 125%.

These QC results suggest that, if Hg had been present in the samples at concentrations above the PQL, the analytical system would have detected and quantified it.

I hope this information meets your needs. Let me know if you have any questions.

SML:sml

DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM

M E M O R A N D U M

December 7, 2000

TO: Barbara Trejo
TCP @ NWRO

FROM: Stewart Lombard
EAP QA Coordinator

SUBJECT: Review of Long Painting Neighborhood Hexavalent Chromium Data

I have received additional information related to the analysis of these samples provided by Sound Analytical Services and can now complete the review of the data package.

The 26 samples were extracted eight days after collection. The lab points out that EPA's SW-846 methods manual allows a holding time of one month for hexavalent chromium (Cr^{+6}) in solid samples. This is curious since SW-846 does not include a procedure for determining Cr^{+6} in soils. **Holding the samples for several days after collection probably did not affect the Cr^{+6} results.**

The lab's SOP for determining Cr^{+6} in soils is an adaptation of the old EP Toxicity test using acetic acid to leach readily soluble species from solid samples. Since EPA Method 7195 is specifically intended for such extracts, the methods used were entirely appropriate. **A simple statement in a case narrative that the EP Toxicity extraction procedure was used for these samples would have expedited review of this data.**

The lab reported "non detects" for all the samples. Practical Quantitation Limits (PQLs) ranged from 0.09 to 0.14 mg/kg (dry weight).

The samples were prepared in two batches. Each batch included a method blank as well as an analytical duplicate and matrix spike (MS). A check standard (referred to as a spiked blank) was analyzed in duplicate in each of the batches.

Results for both method blanks were non-detects. For one of the batches, the matrix spike recovery was 79%, within the normal acceptance limits of 75 – 125%. The results for the analytical duplicates were both non-detects so a relative percent difference (RPD) could not be determined.

For the other batch, the analytical duplicate and matrix spike were prepared from samples from a different study and their **results have no direct bearing on those of the Long Painting Neighborhood samples.**

The lab states that a case narrative, which would have clarified this and other issues, was not requested by the client and, therefore, was not provided. **It is the responsibility of the lab to provide key information related to the quality of the data regardless of whether a case narrative is requested by the client.**

Recoveries for the check standard averaged 87.5% in one batch and 94% in the other, with RPDs of 2.2% and 1.1%, respectively, indicating excellent precision. However, the recoveries for the check standard in the one batch are outside the prescribed limits of 90 - 110% indicating a slight negative bias.

These QC results suggest that the actual PQLs might be slightly higher than those stated. If the decision levels are close to the stated PQLs, a different procedure will be required to ensure that the decision level has not been exceeded.

I hope this information meets your needs. Let me know if you have any questions.

SML:sml